viduals in a cave near Mentone. From a study of their skulls the reviewer came to the conclusion that they had nothing of the African negro in them, but that they were of the Cromagnon race, a conclusion which Prof. Pearson has reached independently from a study of their thigh-bones. He is uncertain of the relationship of Neanderthal and of Cromagnon man to modern races of mankind—uncertain as to whether these two types of ancient Europeans should figure as stages, or links, in the chain of modern man's evolution, or whether they really represent branches which have sprung from that stem. The evidence of their skulls and teeth leaves modern anatomists in little doubt as to their true relationships; Neanderthal man represents the terminal stage of a side branch, whereas Cromagnon man is but one of the numerous varieties of modern man. One other point is to be noted: in surveying the evolutionary evidence yielded by a single bone the same discordant array of indications is found as when all the systems of the body are studied; the final result has to be obtained by an exercise of judgment on the part of the classifier.

It is a matter of everyday observation that no two people walk exactly alike; there is the same infinite variety in the human gait as is found in the human face. Women have their own particular kind of progression; not one of us uses the right limb in exactly the same way as the left; the left foot is more frequently inturned to a greater degree than is the right. If, as medical men believe, bone-cells are peculiarly sensitive and responsive to the muscular and other stresses which are brought to bear on them, then there ought to be just that range of variation of form in the thigh-bone which this monograph demonstrates to exist. A functional explanation of the structural variation of the femur is one which Prof. Pearson is not prepared to entertain, and unfortunately medical men have as yet neglected, or almost neglected, the study of the living femur, and are therefore unable to say whether or not the anatomical forms of the femur are correlated to certain peculiarities of gait. The improvement in our means of examining the anatomy of the thigh-bone in the living by the aid of X-rays is likely to fill up this blank in our knowledge, and at the same time to offer a rational explanation of many puzzling features noted and estimated by Prof. Pearson and his collaborator. A study of the manner of progression of anthropoids in their natural habitats will help to show how closely form and function are correlated. In the orang, for instance, the hind limbs are reduced to mere grasping organs; in it and in the gibbon the swinging arms are the chief organs of progression. In the reviewer's opinion all measurements and calculations should be made, so far as is practicable, not only to indicate the degree and kind of racial characteristics, but also to express degrees and kinds of function. Indices should be of such a nature as to convey to the student a precise conception of the degree and kind of function.

This great memoir opens up a prospect which may well appal the heart of the stoutest anatomist. Here we have two parts, running to 539 pages, each page containing on an average more than 500 words, devoted to the subject which the authors speak of as femoralogy and the special students of which are called femoralogists, with the promise of a third part. When the examination of the human skeleton is completed on a corresponding scale we shall have an immense library. We may not like the prospect, but is there any option if our knowledge of mankind is to be based on a foundation which will last? The reviewer does not think there is any other way, and feels sure that the time will certainly come, if it has not already come, when anatomists the world over will acknowledge the courage, industry, and prescience of the English school of biometrics and of its founder. It would be a set-back to the progress of our knowledge of mankind were Prof. Pearson's projected programme to be in any way curtailed by a lack of financial assistance.

A. KEITH.

The Theoretic Basis of Psychotherapy.

The New Psychology and its Relation to Life. By A. G. Tansley. Pp. 283. (London: George Allen and Unwin, Ltd., 1920.) Price 10*s*. 6*d*. net.

ABOUT fifteen years ago Prof. Scripture, of Yale, published his book upon "The New Psychology." The psychology which was "new" then was experimental psychology; now the new psychology is something very different—the study of the non-rational processes of the human mind. Most of the material of Mr. Tansley's book consists in theories which are contained in the works of Prof. Freud, of Vienna; of Dr. Jung, of Zurich; and of Mr. William McDougall, who is just now leaving Oxford to settle at Harvard. The work of these three researchers has achieved world-wide renown; Mr. Tansley has done a good service in presenting some important elements of them in a compact and readable form. Mr. McDougall's books are accessible enough, but the views of the two Continental savants are scattered through various publications in a way which is rather baffling to the English reader. With

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the help of Mr. Tansley anyone can now make himself acquainted with the main points at issue.

The work of Freud and Jung deals mainly with the sub-conscious, that mysterious twilight region of the mind whence spring most of our deepest and strongest motives. The key which Freud has used to unlock its secrets is sex. He lays stress upon the immature sex-experience of young children and upon the repressed sexual desires of adult life which show themselves in dreams and in lapses of memory and behaviour. In this way he explains not merely the unusual phenomena of hysteria, but also the mental strains and stresses which trouble the peace of ordinary sane men. Dr. Jung, on the other hand, takes a wider view; he argues that not only sex, but also every strong natural human interest—the desire for self-preservation, for example—may be the cause of mental conflicts and nervous disorders. His view has been strikingly confirmed by the experience of the physicians who have treated the complicated war-neuroses which are familiar to the public under the term of "shell-shock." It is another side of the sub-conscious that has engaged the attention of Mr. McDougall. He has written more upon our instinctive life and shown how much of the experience which seems to us distinctively human is really based upon tendencies that are shared with the animals below us. He has done a great work in analysing our various instincts and in showing how they influence our conduct and our emotional life.

The main reason why the new psychology has so greatly impressed popular imagination is that most excellent results have been produced by it in the treatment of nervous disorders. The early workers in this field were men who were either practising physicians, or closely in touch with medicine. As soon as they formed a theory they proceeded at once to put it to the test of practice. Extraordinary cures have been performed by working upon the assumption that the trouble in the patient is of mental origin, and that the bodily symptoms are merely the physical expression of mental strain. In psychotherapy, as in medicine generally, our knowledge of detail and of derivative facts far exceeds our knowledge of fundamental principles. We know, for example, that if the physician is able to discover the nature of a hidden mental conflict which is troubling the patient, and can talk and reason with him about it, the symptoms are usually relieved. This process is technically termed "abreaction," and the real efficacy of it is attested by scores of incontestable cures.

This being so, it is easy to explain why Mr. Tansley's book is most satisfactory when he is dealing with such matters as the interpretation of dreams, the "rationalisations" by which men try to justify conduct which is really prompted by non-rational motives, and the great psychic complexes which correspond to the main instincts of man. And we can explain why the book is less satisfactory in the general theoretical chapters with which it opens. Mr. Tansley has done his best to combine "new" psychological theories from Freud, Jung, and McDougall into a consistent whole. The result is not very clear or convincing. But perhaps in the present state of our knowledge we could scarcely look for greater success. H. S.

Industrial Research.

The Organisation of Industrial Scientific Research. By Dr. C. E. Kenneth Mees. Pp. ix + 175. (New York and London: McGraw-Hill Book Co., Inc., 1920.) Price 12*s.*

THE author of this book is a distinguished worker in the branch of science with which he is associated, and his experience as the director of a large industrial research organisation has been such as to warrant careful consideration of his views. The book is mainly intended for manufacturers who, while convinced of the need for research in their industries, have had no occasion to consider in detail the planning and administration of a works research department. Many scientific workers will also welcome an opportunity of acquainting themselves further with the broad questions of research policy and organisation in industry, which the individual engaged on a specific task often fails to see in correct perspective. The scope of the book and the sequence of chapters are admirable. Consideration is given to various types of research laboratories, to the development of co-operative research, and particularly to the internal organisation and staffing of the works research laboratory, together with its relation to the other parts of the factory. Some general details are also given relating to the design and equipment of the laboratory, and a comprehensive bibliography is attached.

The classification of research laboratories largely resolves itself into a list of the various agencies by which the laboratories are financially maintained. To avoid the obvious disadvantages of such a grouping, the author distinguishes between "convergent" and "divergent" laboratories, depending on whether varied problems and phenomena converging on a common object are studied, such, for instance, as at the pottery school at Stoke-on-Trent or at the laboratory for glass technology at Sheffield, or whether a wider field is covered having no particular common

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